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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/932,291	08/17/2001	Gary L. Cantrell	MRD/53	4770

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WOOD, HERRON & EVANS, LLP
2700 CAREW TOWER
441 VINE STREET
CINCINNATI, OH 45202

EXAMINER

JONES, DAMERON LEVEST

ART UNIT PAPER NUMBER

1618

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/932,291

Applicant(s)

CANTRELL ET AL.

Examiner

D. L. Jones

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2005; 7/13/04; & 8/11/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 31-50, 52, 53 and 55-80 is/are pending in the application.
- 4a) Of the above claim(s) 33, 34 and 37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 31, 32, 35, 36, 38, 42, 47-50, 52, 53 and 55-80 is/are rejected.
- 7) ☒ Claim(s) 39-41 and 43-46 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/13/04 & 8/11/04</u> . | 6) <input type="checkbox"/> Other: _____ |

ACKNOWLEDGMENTS

1. The Examiner acknowledges the amendment filed 9/28/04 wherein claims 1-30, 51, and 54 were canceled; claims 31-38, 48, 50, 55, and 67 were amended; and claims 68-80 are pending.

Note: Claims 31-50, 52, 53, and 55-80 are pending.

RESPONSE TO APPLICANT'S ELECTION

2. Applicant's election with traverse of newly added Group (24) directed to a method of targeting an effector molecule wherein the lamellar structure is a combination of docosanoic and octacosanoic acids sodium salts wherein A1 is a succinic acid ester of PEG[50]stearate as set forth in claim 65 is acknowledged. Since newly added Group (24) is a combination of Groups (17) and (20), the Examiner will examine those groups as well when A1 is a succinic acid ester of PEG[50]stearate as in Applicant's elected group. In addition, it should be noted that while Applicant has elected with traverse, the election is being viewed as one without traverse since the supposed errors in the restriction requirement were not pointed out. Thus, the restriction requirement is still deemed proper and is therefore made FINAL.

Note #1: The search was not extended beyond Groups (17), (20) and (24) wherein the lamellar structure is docosanoic, octacosanoic, or a combination of docosanoic and octacosanoic acids and A1 is a succinic acid ester of PEG[50]stearate.

Note #2: Claims 31, 32, 35, 36, 38-50, 52, 53, and 55-80 are directed to Groups (17), (20), and (24).

WITHDRAWN CLAIMS

3. Claims 33, 34, and 37 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention/species.

112 REJECTIONS (First Paragraph)

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 31, 32, 35, 36, 38, 42, 47-50, 52, 53, and 55-80 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for *echogenic effector* molecules selected from perfluoropropane, perfluorobutane, sulfur hexafluoride, tetrafluoromethane, hexafluoroethane, octafluoropropane, decafluorobutane, dodecafluoropentane, and perfluorohexane; *radionuclide* effector molecules selected from I-123, I-131, Tc-99m, Re-186, Re-188, Sm-152, Ho-155, Bi-202, and Lu-157; *paramagnetic* effector molecules selected from Gd-DTPA, Gd-DOTA, Gd-DTPA-bis(methoxyethyl)amide, and Mn-EDTA; *optical* effector molecules selected from a fluorescein and indocyanine green; and *cytotoxic* effector molecules selected from fluorouracil, fluorouridine, sulfisoxazole, N'-(w-thiazoyl)sulfanilamide, sulfmethoxazole, and sulfisomidine, does not reasonably provide enablement for all effector molecules selected from all echogenic agents, all ultrasound agents, all radionuclides, all radioligands, all paramagnetic agents, all chromophores, all optical agents, all x-ray opacification agents, all antibiotics, imaging agents, and all cytotoxic

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agents. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

There are several guidelines when determining if the specification of an application allows the skilled artisan to practice the invention without undue experimentation. The factors to be considered in determining what constitutes undue experimentation were affirmed by the court in *In re Wands* (8 USPQ2d 1400 (CAFC 1986)). These factors are (1) nature of the invention; (2) state of the prior art; (3) level of one of ordinary skill in the art; (4) level of predictability in the art; (5) amount of direction and guidance provided by the inventor; (6) existence of working examples; (7) breadth of claims; and (8) quantity of experimentation needed to make or use the invention based on the content of the disclosure.

(1) Nature of the invention

The claims are directed to methods of targeting effector molecules to a site of interest in a subject as set forth in independent claims 48 and 67.

(2) State of the prior art

The references do not indicate which specific effector molecules selected from echogenic agents, ultrasound agents, radionuclides, radioligands, paramagnetic agents, chromophores, optical agents, x-ray opacification agents, antibiotics, imaging agents and cytotoxic agents that are useful with the claimed invention.

(3) Level of one of ordinary skill in the art

The level of one of ordinary skill in the art is high. Independent claims 48 and 67 encompass a vast number of possible effector agents. Applicant's specification does not enable the public to make or use such a vast number of effector agents.

(4) Level of predictability in the art

The art pertaining to the use of effector agents is highly unpredictable since the molecule must be compatible with the lamellar structure, A1, A2, B1, B2, L1, and L2 of the organized mobile multicomponent conjugate. Determining the various types of effector molecules or classes of effector molecules that are compatible with the multicomponent conjugate requires various experimental procedures and without guidance that is applicable to all effector molecules, there would be little predictability in performing the claimed invention.

(5) Amount of direction and guidance provided by the inventor

Independent claims 48 and 67 encompass a vast number of effector molecules. Applicant's limited guidance does not enable the public to prepare such a numerous amount of effector molecules other than those set forth above. Hence, there is no enablement for all possible effector molecules.

(6) Existence of working examples

Independent claims 48 and 67 encompass vast number of effector molecules. Applicant's limited working examples do not enable the public to prepare such a numerous amount of effector molecules other than echogenic effector molecules selected from perfluoropropane, perfluorobutane, sulfur hexafluoride, tetrafluoromethane, hexafluoroethane, octafluoropropane, decafluorobutane,

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dodecafluoropentane, and perfluorohexane; radionuclide effector molecules selected from I-123, I-131, Tc-99m, Re-186, Re-188, Sm-152, Ho-155, Bi-202, and Lu-157; paramagnetic effector molecules selected from Gd-DTPA, Gd-DOTA, Gd-DTPA-bis(methoxyethyl)amide, and Mn-EDTA; optical effector molecules selected from fluorescein and indocyanine green; and cytotoxic effector molecules selected from fluorouracil, fluorouridine, sulfisoxazole, N'-(w-thiazoyl)sulfanilamide, sulfmethoxazole, and sulfisomidine. Thus, while Applicant's claims encompass a plethora of possible effector molecules, the specification provides only a limited number of molecules.

(7) Breadth of claims

The claims are extremely broad due to the vast number of possible effector molecules known to exist.

(8) Quantity of experimentation needed to make or use the invention based on the content of the disclosure

The specification does not enable any person skilled in the art to which it pertains to make or use the invention commensurate in scope with the claims. In particular, the specification fails to enable the skilled artisan to practice the invention without undue experimentation. Furthermore, based on the unpredictable nature of the invention, the state of the prior art, and the extreme breadth of the claims, one skilled in the art could not perform the claimed invention without undue experimentation.

112 REJECTIONS (Second Paragraph)

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 38, 49, 55, 58, 64, 68, 69, 70, and 72 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 38 and 69: The claim as written is ambiguous because it is unclear what echogenic agent, ultrasound agent, paramagnetic agent, radioligand, chromophore, radionuclide, optical agent, and x-ray opacification agent Applicant is claiming to be compatible with the instant invention. Please clarify in order that one may readily be able to ascertain what effector molecule is being targeted.

Claims 49 and 70: The claim as written is ambiguous because it is unclear what imaging agent Applicant is referring to that is compatible with the instant invention.

Claims 55 and 72: The claim as written is ambiguous because it is unclear what chemotherapeutic agent, antibiotic, and cytotoxic agent Applicant is claiming to be compatible with the instant invention.

Claims 58 and 64: The claim as written is ambiguous because of the phrase 'derivatives thereof'. In particular, it is unclear what derivatives Applicant is referring to since any modification to the parent structure results in a derivative. Thus, one cannot ascertain what portion of the parent structure remains in the derivative. Hence, it is unclear what particular species are being claimed. Similarly, claim 64 is ambiguous because of the phrase 'derivatives of at least one octadecanoic acid, docosanoic acid, or octacosanoic acid'. Once again, it is unclear what species are being claimed since one cannot ascertain which portion of the parent structure remains in the derivative.

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Claim 68: The claim as written is ambiguous because of the phrases 'at least one of an oligosaccharide derived from the glycan family of carbohydrate including but not limited to....-O(CH₂)_{1 or 2} PO₄⁻. In particular, it is unclear what other species Applicant is intending to be compatible with the instant invention.

CLAIM OBJECTIONS

8. Claims 39-41 and 43-46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

COMMENTS/NOTES


9. It should be noted that no prior art has been cited against Applicant's claims 31, 32, 35, 36, 38-50, 52, 53, and 55-80 as they related to Groups (17), (20), and (24); however, one MUST address and overcome the 112 rejections below. The closest prior art is Garrity et al (US Patent No. 6,045,821) which is directed to liposomal agents. Garrity et al differs from the instant invention because it neither anticipates nor renders obvious a multicomponent assembly as set forth in independent claims 48 and 67 of the instant invention wherein the lamellar structure is docosanoic, octacosanoic, or a combination of docosanoic and octacosanoic acids and A1 is a succinic acid ester of PEG[50]stearate.

10. Applicant is respectfully requested to delete the non-elected subject matter.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. L. Jones whose telephone number is (571) 272-0617. The examiner can normally be reached on Mon.-Fri., 6:45 a.m. - 3:15 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman Page can be reached on (571) 272-0602. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



D. L. Jones
Primary Examiner
Art Unit 1618

June 24, 2005